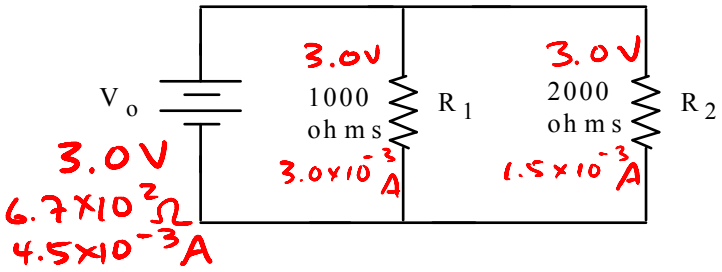
Example #9: Consider the following circuit diagram showing two resistors attached in parallel to a battery of two 1.5 V cells. Determine all unknown currents, voltages and resistances.



$\rightarrow R_0 = \left[\frac{1}{1000} + \frac{1}{2000}\right]^{-1} = 6.7 \times 10^2\ \Omega$ (667)

$\rightarrow I_0 = \frac{V_0}{R_0} = \frac{3.0}{667} = 4.5 \times 10^{-3}\ A$

→ voltage drop across each resistor equals voltage gain by battery, so

$V_1 = V_2 = 3.0\ V$

→ Finally,

$I_1 = \frac{V_1}{R_1} = \frac{3.0}{1000} = 3.0 \times 10^{-3}\ A$

$I_2 = \frac{V_2}{R_2} = \frac{3.0}{2000} = 1.5 \times 10^{-3}\ A$